



Dr. Foster's charge to develop a
NOS Coastal Environmental Monitoring Plan :

“address all activities conducted or supported by NOS related to the regular collection, management, analysis, and dissemination of environmental monitoring and observational data and information. The Plan should summarize existing and planned NOS efforts, recommend ways to improve NOS's effectiveness and efficiency of those efforts, and provide estimates of the resources necessary to fully implement NOS's responsibilities in this area”



Working Definition

NOS Coastal Environmental Monitoring consists of all activities conducted or supported by NOS involving the **repetitive, long-term collection of measurements** taken to establish **a baseline** or to **determine a trend in environmental conditions** and including the management, analysis, and dissemination of these measurements.

Elements of an Integrated Monitoring Strategy

Defining Needs and Integrated Planning

- Identify Stewardship Responsibilities
- Identify Priority Problems/Issues of Concern
- Build Monitoring Inventory
- Identify partnerships and integration opportunities

Monitoring - Repetitive measurements intended to establish a baseline or determine a trend of environmental change (working definition proposed by CEMC)

Methods Development and Research

- Analytical techniques
- Monitoring equipment and protocols
- Model building

Data Acquisition

- Operational monitoring
- Baseline characterization or repetitive measurements
- Varying time and space scales

Data Delivery

- QA/QC procedures
- Dissemination to users

Assessment Products

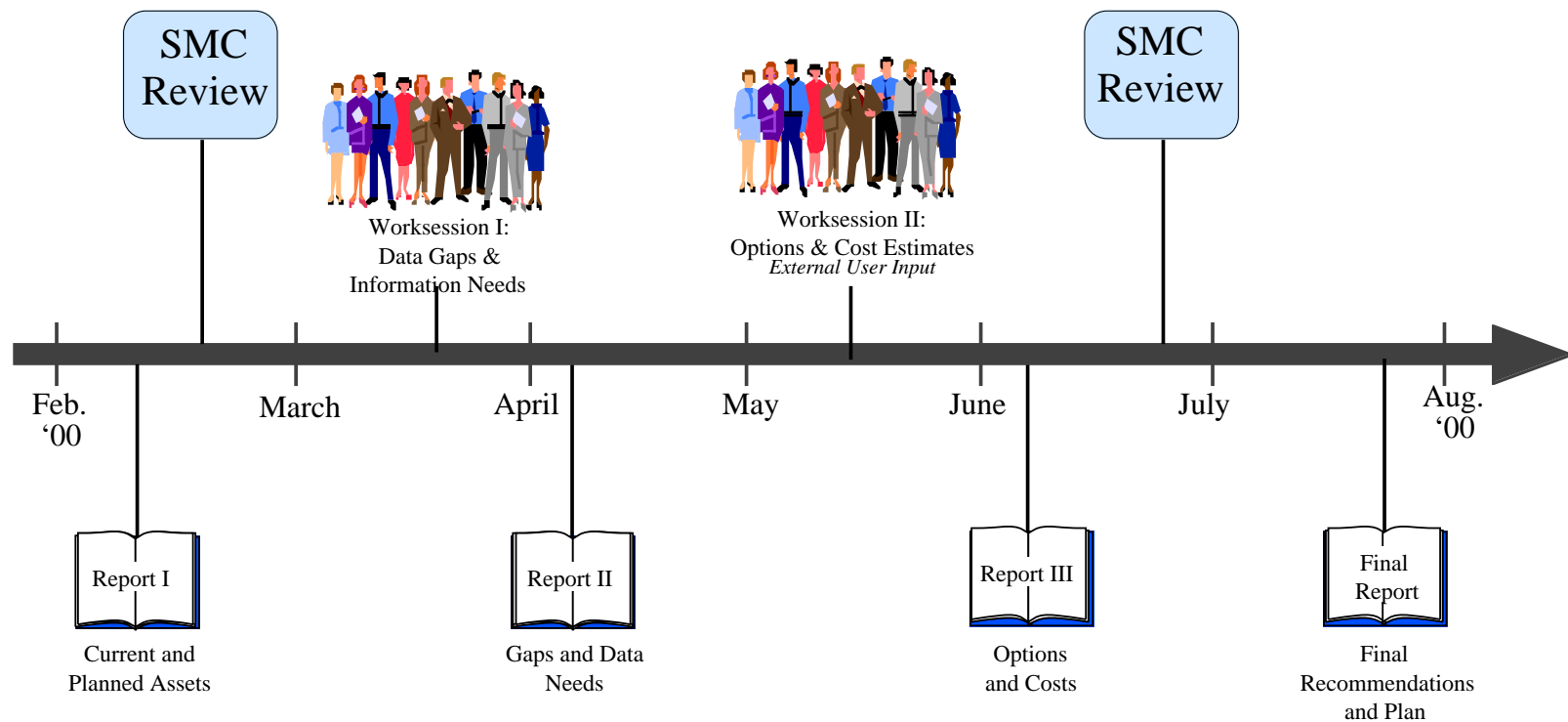
- State of the Coast Reports
- Forecasts
- Indicators and Performance Measures

Management, Education, and Decisionmaking

- More informed decisions
- Improved coastal stewardship

Feedback to refine monitoring strategy

Timeline



Operational Monitoring Inventory



- | | |
|---------------------------|----------------------------|
| ■ Program Type | ■ Temporal Characteristics |
| ■ Program Name | ■ Users/Customers |
| ■ Purpose | ■ Funding Amounts |
| ■ Mandates/Authorizations | ■ Availability of Data |
| ■ Monitoring Focus | ■ Tier (1,2,3) |
| ■ Target Parameter Groups | ■ Products |

Operational Monitoring Inventory - Preliminary Findings



- 23 Programs currently surveyed
- Primary focus is monitoring for Healthy Marine Ecosystems and Safe Marine Operations
- Mix of National (Tier I) and more site-specific, cause and effect monitoring (Tiers II and III)
- FY00 Investment still being determined

Operational Inventory

NOS Operational Monitoring Programs

Draft

NOS Office	Type	Program	Monitoring Focus (Adapted from US GOOS Framework)							Scale			FY00 NOS Total Investment (in \$ millions)	
			Detecting Climate Variability	Safe Marine Operations	Managing Living Marine Resources	Healthy Marine Ecosystems	Mitigating Natural Hazards	Ensuring Public Health	Sustainable Coastal Communities	Tier I	Tier II	Tier III		
Ecosystems	NCCOS	R	NS&T Mussel Watch				●		●		●			\$0.75
		B	NS&T Bioeffects Survey				●					●	●	\$0.75
		R	NS&T Benthic Surveillance *				●				●			\$0 (\$0.75 in 1993)
		R	Coastal Intensive Site Network (CISNet)				●						●	\$0.38
		R	Coral Reef Mapping			●	●				●			\$1.25
		B	Coral Reef Monitoring **			●	●				●			\$0.00
		R	Florida Keys NMS - Zoning Monitoring			●	●		●				●	\$0.00
		R	South Florida Benthic Communities			●	●						●	\$0.18
		R	Harmful Algal Blooms (EcoHab?)				●		●			●	●	\$0.00
		R	Mississippi River Hypoxia (Coastal Ocean Program)				●					●		not complete
	Subtotal: \$3.3												\$0.75	
	OCRM	B	National Marine Sanctuaries (NMS) Monitoring			●	●	●				●	●	not complete
		R	National Estuarine Research Reserve System-wide Monitoring Program (SWMP)				●					●	●	1.40
		Subtotal: \$1.40												\$0.00
	CSC	B	Land Cover Change Analysis				●			●	●			\$0.45
		B	Topographic Beach Change Mapping					●		●	●			\$0.20
		B	Benthic Habitat Assessment and Mapping: • Seagrass Mapping • Remote Sensing of Coral Reefs • Unconsolidated Sediments			●	●				●			\$0.39
		Subtotal: \$1.035												\$0.00
	ORR	R	Prince William Sound Long-term Monitoring Program (sponsored by the Exxon Valdez Oil Spill Trustee Council, conducted by NOS)				●					●		\$0.00
Physical	OCS	R	Hydrographic Survey		●						●		not available	
	CO-OPS	R	Physical Oceanographic Real-Time System (PORTS)		●						●		\$1.00	
		R	National Water Level Observation Network (NWLON): • Long-term Water Level Measurement Stations • Tide Prediction Stations	●	●		●	●			●		\$8.40	
	Subtotal: \$9.4												\$0.00	
	NGS	R	Geodesy		●			●				●		\$1.10
B		Coastal Mapping Program		●			●				●		\$2.00	
Subtotal: \$3.10												\$0.00		
Economic	SPO	R	Socioeconomic Monitoring for Florida Keys NMS						●		●		\$0.18	
		R	National Survey on Recreation and the Environment							●			\$0.50	
		Subtotal: \$0.68												\$0.00
													Total: not complete	

* Currently suspended due to funding constraints, ** Currently under development; R = repetitive monitoring, B = baseline monitoring; • = primary focus, • = secondary focus

CEMC Web Site Tour



[NOS Home](#)

[Materials for CEMC Report](#)

Review and comment on draft versions of the CEMC Report. Review relevant background materials in Portable Document Format (PDF).

[Member List](#)

See CEMC work group member names and contact information.

[Map Monitoring Programs](#)

*****UNDER CONSTRUCTION*****

Use an interactive mapping tool (ArcIMS Beta 3.0) to view data and compare monitoring programs. Zoom, pan, turn layers on/off, and list data. Because this is a beta version, please contact, [Alison Hammer](#) for user address.

[Image Gallery](#)

View pre-made maps of various NOS and other Federal monitoring programs. Save and print images.

[NOS Monitoring Program Inventory](#)

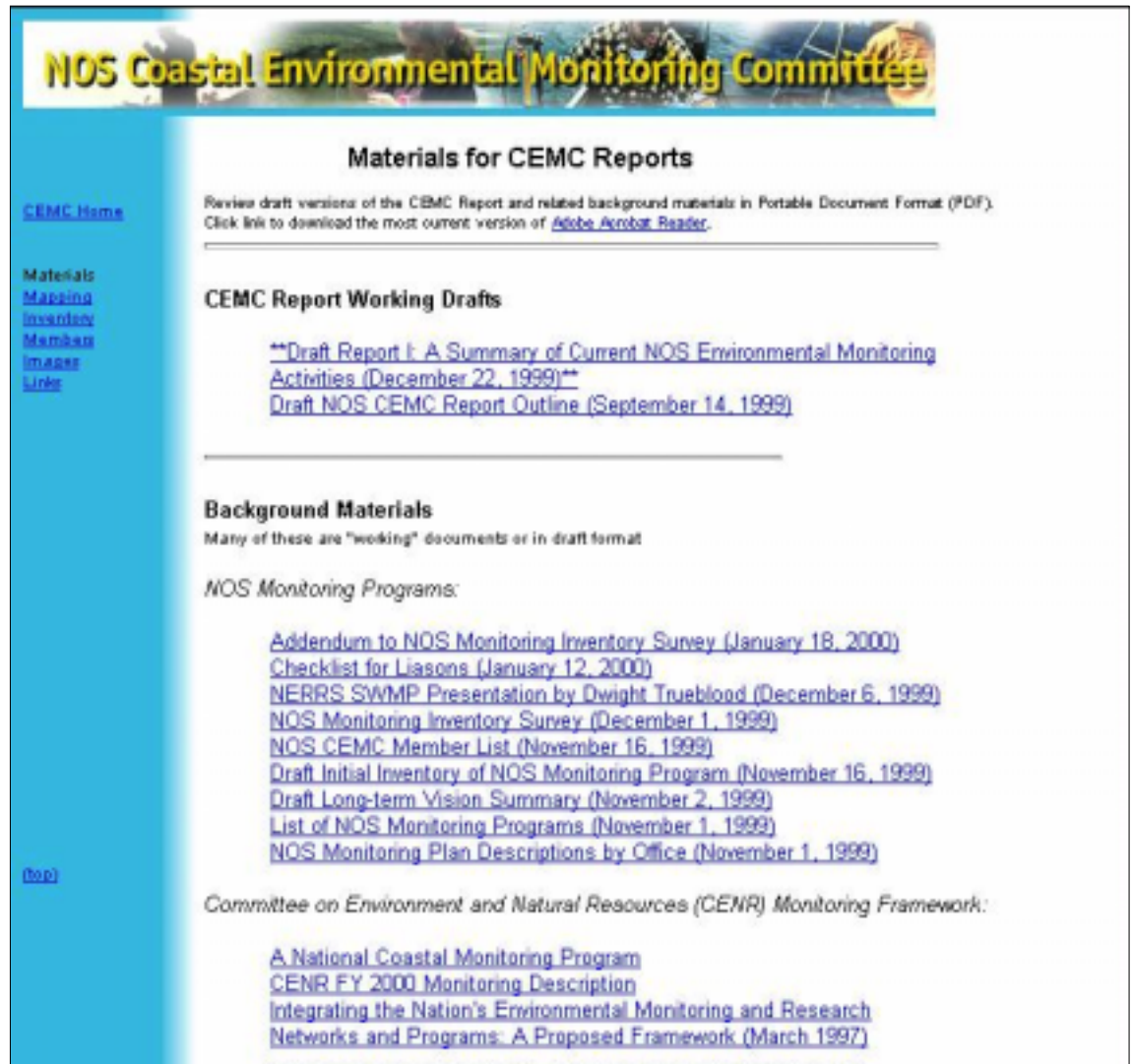
View characteristics of NOS monitoring programs.

[Relevant Web Links](#)

Link to NOS and other monitoring Web sites and to important on-line publications.

Background Materials

- Report drafts
- Committee support materials
- Relevant reports and references



The screenshot shows the website for the NOS Coastal Environmental Monitoring Committee. The header features the committee's name in a yellow banner. Below the header, there is a section titled "Materials for CEMC Reports" which includes a link to download the most current version of the Adobe Acrobat Reader. A section titled "CEMC Report Working Drafts" lists two draft reports: "Draft Report I: A Summary of Current NOS Environmental Monitoring Activities (December 22, 1999)" and "Draft NOS CEMC Report Outline (September 14, 1999)". A section titled "Background Materials" lists various documents, including "Addendum to NOS Monitoring Inventory Survey (January 18, 2000)", "Checklist for Liasons (January 12, 2000)", "NERRS SWMP Presentation by Dwight Trueblood (December 6, 1999)", "NOS Monitoring Inventory Survey (December 1, 1999)", "NOS CEMC Member List (November 16, 1999)", "Draft Initial Inventory of NOS Monitoring Program (November 16, 1999)", "Draft Long-term Vision Summary (November 2, 1999)", "List of NOS Monitoring Programs (November 1, 1999)", and "NOS Monitoring Plan Descriptions by Office (November 1, 1999)". A section titled "Committee on Environment and Natural Resources (CENR) Monitoring Framework" lists "A National Coastal Monitoring Program", "CENR FY 2000 Monitoring Description", and "Integrating the Nation's Environmental Monitoring and Research Networks and Programs: A Proposed Framework (March 1997)". A sidebar on the left contains links for "CEMC Home", "Materials", "Mapping", "Inventory", "Members", "Images", and "Links". A "top" link is located at the bottom left of the sidebar.

NOS Coastal Environmental Monitoring Committee

Materials for CEMC Reports

Review draft versions of the CEMC Report and related background materials in Portable Document Format (PDF). Click link to download the most current version of [Adobe Acrobat Reader](#).

CEMC Report Working Drafts

[**Draft Report I: A Summary of Current NOS Environmental Monitoring Activities \(December 22, 1999\)**](#)
[Draft NOS CEMC Report Outline \(September 14, 1999\)](#)

Background Materials

Many of these are "working" documents or in draft format

NOS Monitoring Programs:

- [Addendum to NOS Monitoring Inventory Survey \(January 18, 2000\)](#)
- [Checklist for Liasons \(January 12, 2000\)](#)
- [NERRS SWMP Presentation by Dwight Trueblood \(December 6, 1999\)](#)
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Committee on Environment and Natural Resources (CENR) Monitoring Framework:

- [A National Coastal Monitoring Program](#)
- [CENR FY 2000 Monitoring Description](#)
- [Integrating the Nation's Environmental Monitoring and Research Networks and Programs: A Proposed Framework \(March 1997\)](#)

[top](#)

Monitoring Inventory

- Table of Operational Monitoring Programs
- Survey results
- Other related programs



NOS Coastal Environmental Monitoring Committee

An Inventory of NOS Monitoring Programs and Related Activities
[Introduction](#) • [NOS Current Operational Monitoring Programs](#) • [Other Monitoring Program Types](#) • [Supporting Data Sets](#) • [Database Fields](#) • [Background Information](#)

This inventory list is a "living document." If you notice a monitoring program that should be included, please notify: Alex.Hammer@noaa.gov

Introduction

Monitoring. Repetitive measurements intended to establish a baseline or determine a trend of environmental change (*working definition proposed by CEMC*)

The purpose of this inventory is to compile a comprehensive listing of monitoring programs and related activities, consistently characterize these programs, and gather geospatial information about their location and extent. The Committee will initially focus on what has been termed "operational" monitoring activities. However, many activities are involved in support of operational monitoring and will eventually be included. For instance, some programs that were originally identified as NOS Monitoring Programs have been determined not to be operational monitoring programs, but rather have been classified as research that supports improved monitoring methods, monitoring not sponsored by NOS or just not monitoring.

Table 1. Current NOS Operational Monitoring Programs

List Current Operational Monitoring Programs by NOS line office as well as the status of the survey and related Archive geographies. Click on "complete" in the survey status column to view a brief program description as well as responses for the entire survey.

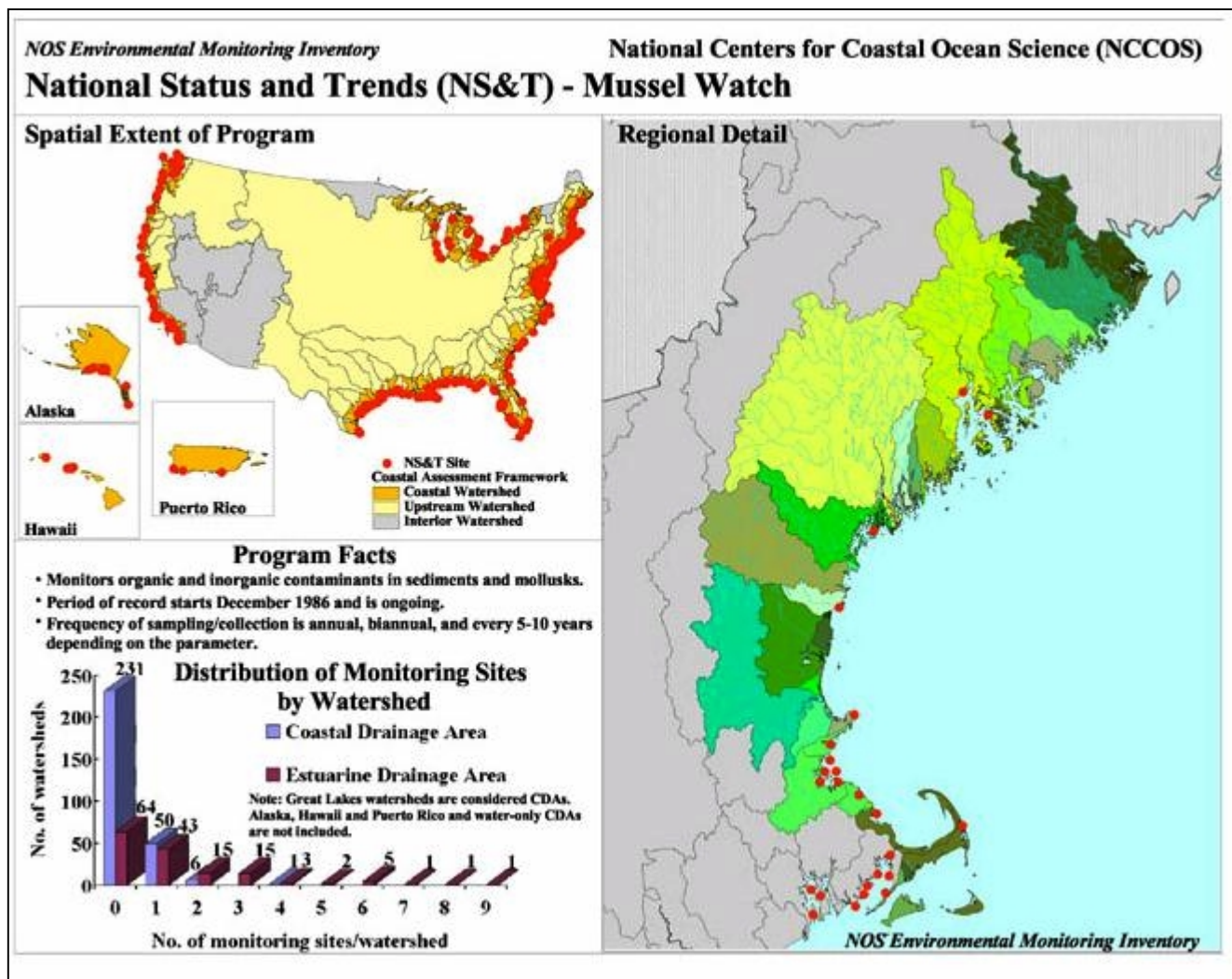
NOS Operational Monitoring Programs	Status of Program
Program Name	Survey
NCCOS	
NS&T Mussel Watch	Complete
NS&T Bioeffects Survey	Complete

Image Gallery

- Quick visual summary
- National extent
- Regional view
- Program facts



Image Gallery Blowup



Related Links

- Program specific links
- NOS site
- Other Federal agencies
- Interagency frameworks
- Legislative authorities



The screenshot shows the homepage of the NOS Coastal Environmental Monitoring Committee. The header features the title "NOS Coastal Environmental Monitoring Committee" in a large, bold, yellow font against a blue background with a collage of coastal images. Below the header, there is a left sidebar with a blue background containing links: "CEMC Home", "Materials", "Mapping", "Inventory", "Members", "Images", and "Links". The main content area has a white background. At the top of this area is a "Web Links" section with a list of links: "National Ocean Service Monitoring Programs", "Federal Monitoring Programs", "Federal Monitoring Frameworks and Implementation Plans", and "Legislative Mandates/Authorizations". Below this is a section titled "National Ocean Service Monitoring Programs" in a blue font. Underneath, it lists "National Centers for Coastal Ocean Science (NCCOS)" and provides details for three specific centers: 1. "The Center for Coastal Monitoring and Assessment (CCMA): National Status and Trends (NS&T) Program" with a link to http://ccmaserver.nos.noaa.gov/NSandT/New_NSandT.html and a brief description of its mission. 2. "Beaufort, NC Laboratory Center for Coastal Fisheries and Habitat Research (CCFHR) NOS/NMFS Cooperative Research on Coastal Fisheries and Habitats" with a link to <http://shrimp.bea.nmfs.gov/labres.html> and a description of its research focus. 3. "Charleston, SC Laboratory Center for Coastal Environmental Health and Biomolecular Research (CCEHBR)" with a link to <http://www.chbr.noaa.gov/> and a description of its research methods. 4. "Great Lakes Environmental Research Laboratory (GLERL)" with a link to <http://www.glerl.noaa.gov/data/> and a description of its research on the Great Lakes. At the bottom left of the sidebar, there is a small blue link labeled "(top)".

NOS Coastal Environmental Monitoring Committee

[CEMC Home](#)

[Materials](#)
[Mapping](#)
[Inventory](#)
[Members](#)
[Images](#)
[Links](#)

Web Links
[National Ocean Service Monitoring Programs](#) • [Federal Monitoring Programs](#) • [Federal Monitoring Frameworks and Implementation Plans](#) • [Legislative Mandates/Authorizations](#)

National Ocean Service Monitoring Programs

National Centers for Coastal Ocean Science (NCCOS):

The Center for Coastal Monitoring and Assessment (CCMA): National Status and Trends (NS&T) Program
http://ccmaserver.nos.noaa.gov/NSandT/New_NSandT.html
NS&T measures the degree and effects of chemical contamination of the Nation's estuaries and their biota.

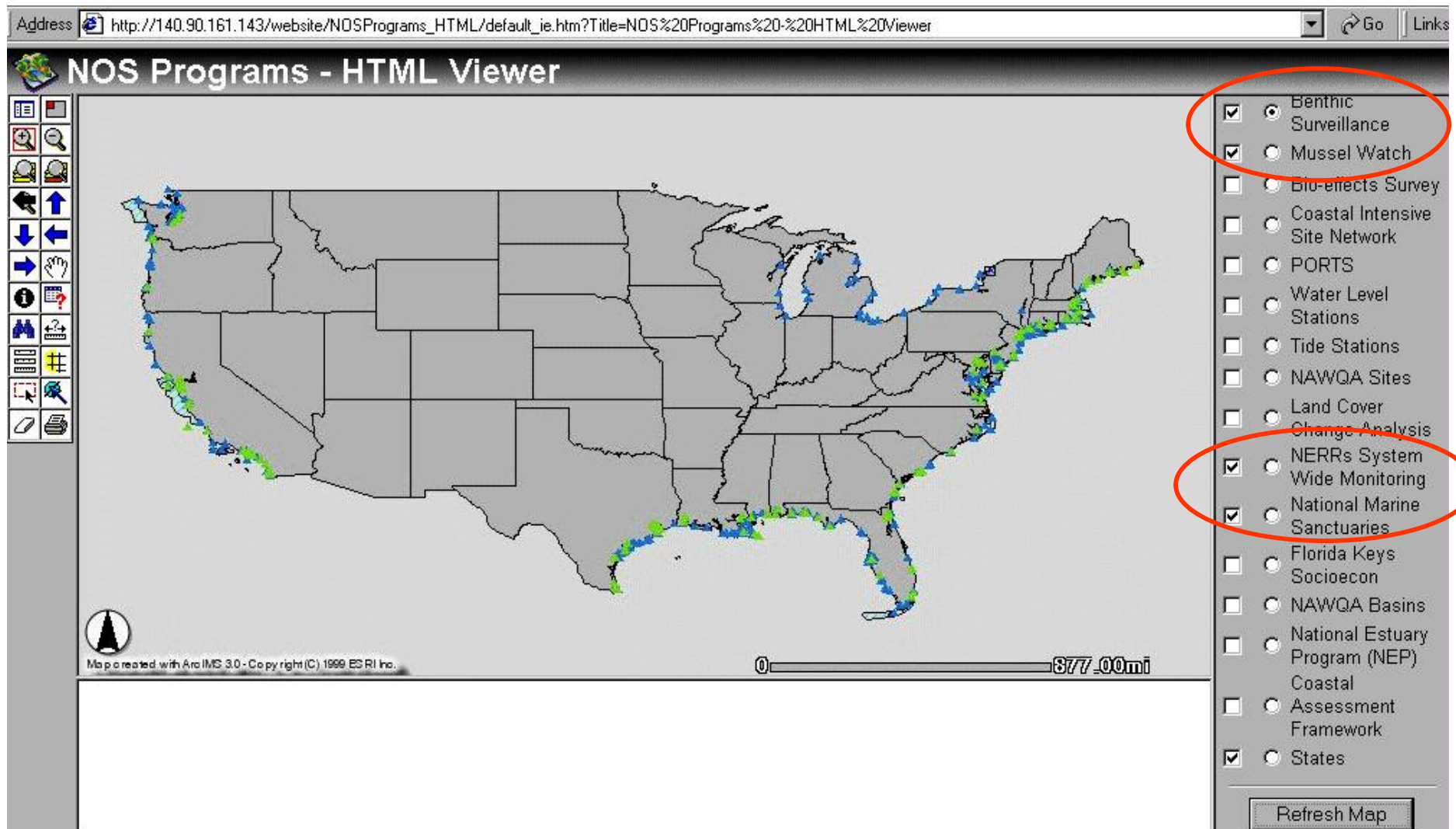
Beaufort, NC Laboratory Center for Coastal Fisheries and Habitat Research (CCFHR) NOS/NMFS Cooperative Research on Coastal Fisheries and Habitats
<http://shrimp.bea.nmfs.gov/labres.html>
CCFHR conducts research on: estuarine processes, biological productivity in nearshore and ocean ecosystems, dynamics of coastal and reef fishery resources, and the effects of anthropogenic influences on coastal habitats and resources.

Charleston, SC Laboratory Center for Coastal Environmental Health and Biomolecular Research (CCEHBR)
<http://www.chbr.noaa.gov/>
Chemical, biomolecular, microbiological, and histological methods are used in both laboratory and field studies to describe, evaluate, and predict the controlling factors and outcomes of natural and anthropogenic influences in marine and estuarine habitats.

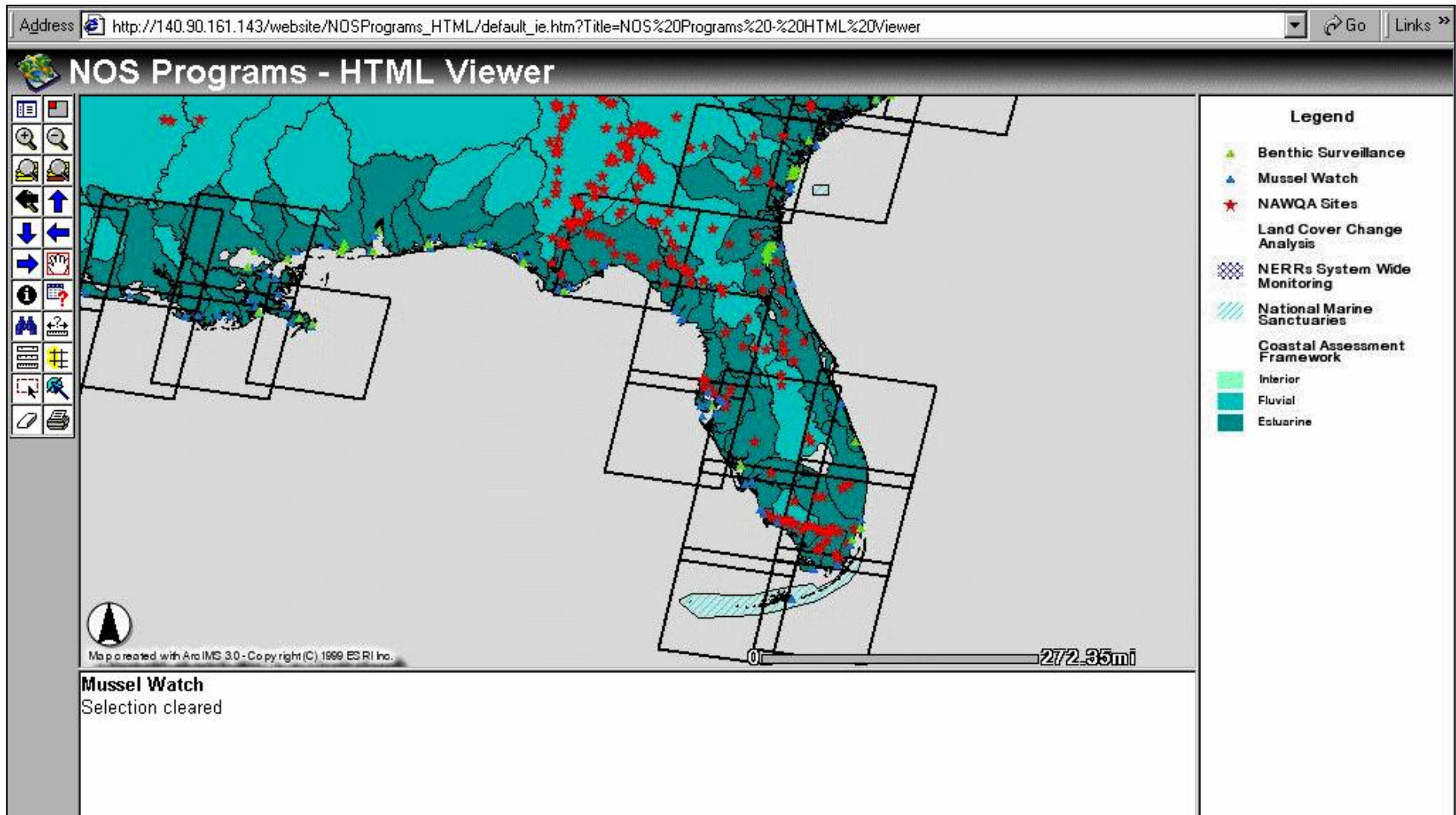
Great Lakes Environmental Research Laboratory (GLERL)
<http://www.glerl.noaa.gov/data/>
GLERL's research provides Federal, State, and international decision and policy makers with scientific understanding of the sources, pathways, rates, and effects of toxicants in the Great Lakes; natural hazards such as severe waves, storm surges, and ecosystems and their interactions, including the implications of invasion by nuisance species; the hydrology and water levels of the Great Lakes; and the effects related to global climate change.

[\(top\)](#)

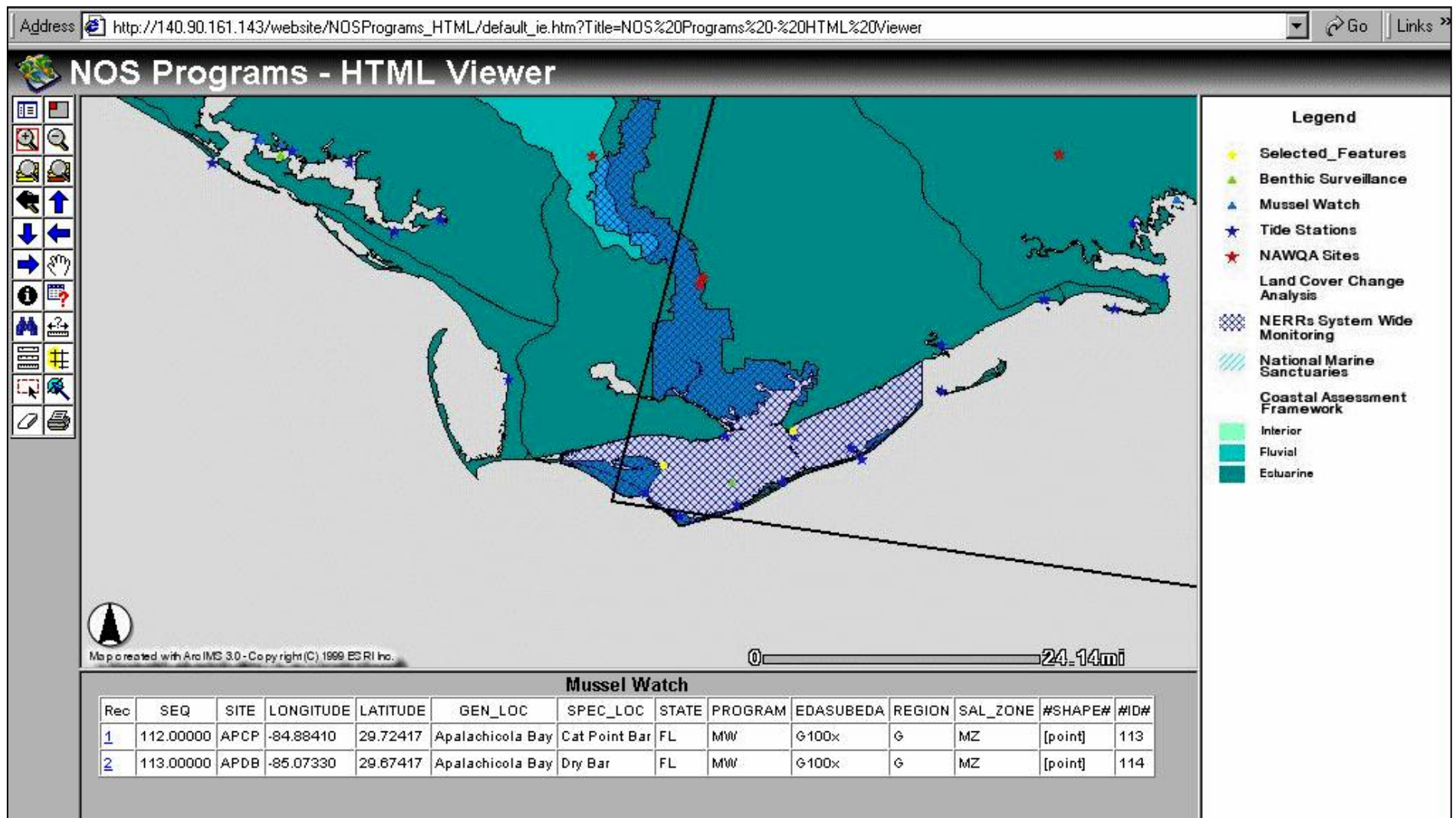
Interactive Mapping



Interactive Mapping - Regional



Interactive Mapping - Zoom



Coordinating with the Coastal Observing System Team



- Programs and web sites are intended for different, though related, purposes and users
- CEMC's work is more detailed and initially more inclusive - COS works at a higher level
- Web mapping capabilities are more robust to investigate spatial relationships
- Web sites will link, and development teams will continue to coordinate



Visit the site at :

<http://is2.nos.noaa.gov/monitoring/cemc/>